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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SHAH, CHIRAG G	
ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 08/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PRG

Office Action Summary	Application No. 09/425,151	Applicant(s) DENG ET AL.	
	Examiner Chirag G Shah	Art Unit 2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,10,15-21,24-27 and 29-34* is/are rejected.

7)☒ Claim(s) *8, 9, 11-14, 22, 23, and 28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4,17, 19-21, and 24-34 rejected under 35 U.S.C. 103(a) as being unpatentable over Galand (U.S. Patent No. 6,038,212) in view of Croslin (U.S. Patent No. 5,832,196).

Referring to claims 1 and 17, Galand teaches in columns 5 and 6, a method and a system for optimally managing and rerouting of established network connections in case of network link/trunk failure. Galand discloses in figure 1 and columns 6-11, of a transmission system comprising of eight nodes being interconnected by trunks or link, along with access nodes, a route controller performing Trunk Connection Management (TCM) similar to a processing module that calculates the optimum routes through the network and a Network Topology Database (NTD) that contains all the information necessary for the routing, about the nodes and transmission links connected to the nodes. NTD uses a control spanning tree system for establishing and maintaining a routing tree among the network nodes and if a failure were to occur, a control message would be dispatched via spanning tree towards access nodes similarly to command nodes to trigger rerouting. Galand fails to include a backup command node. Croslin teaches of dynamic restoration process and discusses in column 4 that an Operational Support Network (OSN) can be implemented to have connectivity to Diverse Network

Equipment (DNE) where a processing system can send and receive signals to the DNEs via the OSN. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Galand's invention to include a backup command node or system in order to provide for a redundancy in a network.

Referring to claims 19-21, Galand teaches in columns 9 and 10 that the trunk/link failure is detected by the node and due to the information contained in the node, Topology Database which is similar to a processing module, may identify all ports whose traffic is disturbed by the link failure. The Topology Database includes the current number of connections originating in access node for each network trunk, and includes a means for updating the image, and detecting a network failure and identifying a trunk involved in network failure, whereby a so-called trunk failure is being identified. It also notes the total number (N) of connections affected by the trunk failure and broadcasting N number throughout the network whereby each network access node is affected by trunk failure is being provided with (N) information as claimed.

Referring to claims 24 and 25, Galand discloses in figure 1 and columns 6-11, of a transmission system comprising of eight nodes being interconnected by trunks or link, along with access nodes, a route controller performing Trunk Connection Management (TCM) similar to a processing module that calculates the optimum routes through the network and a Network Topology Database (NTD) that contains all the information necessary for the routing, about the nodes and transmission links connected to the nodes. Galand fails to teach of a communication module that acts in response to status change information by initiating a re-routing pre-planning process when communication module deems it advisable to account for status change information. Croslin discloses in columns 2, 3 and 4 of diverse network equipment (DNE),

which is similar to a communication modules. The Centralized Processing System (CPS) receives alarms from communication ports of DNE elements. Following that the CPS utilizes the topology database that is updated in real time obtained directly from the DNE network to identify and prioritize all traffic-bearing trucks impacted and finally CPS generates and implements a restoral route for each impacted trunk by issuing appropriate reroute command to the communication module or the DNEs. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the teaching of Galand to include communication modules as taught by Croslin in order to identify isolated failed path.

Referring to claims 26 and 27, Galand discloses in claim 8 and respective portion of the specification that a system for optimizing the connection set-up time and correlative Communication bandwidth occupation required to perform connection rerouting to recover from network failure is performed. Galand discloses that re-routing plan is generated for failures for a specific node and for detecting a network failure and identifying a node and trunk involved in network failure is performed. In addition, a means for addressing involved node Topology Database and deriving the total number (N) of connections affected by trunk failure is performed.

Referring to claims 29-34, Galand explicitly teaches in column 8 and 9, that once a path has been selected, the entry node sends a call set up message to each node on said path, down to the exit node. The call set up message is processed in each individual node by the Transit Connection Manager (TCM), which manages the bandwidth of each trunk involved in the selected path. Furthermore, a Link Metric Update process updates, in case of call acceptance, the modified link metrics. This information is sent through the Control Spanning Tree to the

Topology Database of each node in the network by means of a broadcast algorithm. Galand fails to explicitly disclose explicitly the process of re-routing plans upon network node detection of a failure and transmitting to the nodes that are involved in the execution of the transmitting re-route plan. Croslin teaches in columns 3-5 that if a network outage or failure were to occur, the DNE ports of the impacted trunks will generate alarm, for example in figure 1, if an outage occurs on the segment between nodes F and J, ports on nodes F and J that support that segment will generate alarms. In addition, ports on nodes C, D, M, O, R, and possible other that support the trunk on impacted segment will also generate message alarm and generate a new route circumventing the outage to restore traffic. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Galand's invention to include alarm messages and restoration techniques to impact nodes as taught by Croslin in order to restore and reroute traffic without delay in traffic.

3. Claim 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Galand in view of Croslin as applied to claims1-4, 10, 17, 19-21, and 24-34 above, and further in view of Arslan (U.S. Patent No. 5,706,276).

Referring to claim 18, Galand in view of Croslin teaches of managing and rerouting of established network connections in case of network link/trunk failure including command node and backup command nodes. Galand in view of Croslin fails to teach that a processing module is also designed to receive status information that includes capacity information from other apparatus that is connected to apparatus via ports. Arslan teaches of a system for restoration of communication networks and discusses in columns 9 thru 11 that the search function transmits a

search message via restoration manager and distributed communication manager (similarly TCM and NTD) to that of the to each adjacent restoration processor, this message includes a list of the nodes and the cost associated cost using the nodal pathway. Thus, the search message is able to detect spare channel or path or equipment available at each node in the pathway. Therefore, it would have been obvious to modify Galand in view of Croslin's invention to include the teaching of the search message within the restoration processor or the TCM or NTD in order to receive spare capacity information. This would enable the network to be multi-fault tolerant in case a path were to fail and the information of alternate path is needed.

4. Claims 5, 6, 7, 10, 15 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Galand (U.S. Patent No. 6,038,212) in view of Commerford (U.S. Patent No. 6,134,671).

Referring to claims 5, 6, 7, 10, 15, and 16, Galand teaches a communication packet switching transmission system comprising eight nodes being interconnected by high-speed communication links and includes access nodes, which comprise of one or more ports providing access to external devices. Galand also teaches of a route controller performing Trunk Connection Management (TCM) similar to a processing module that calculates the optimum routes through the network and a Network Topology Database (NTD) that contains all the information necessary for the routing, about the nodes and transmission links connected to the nodes. NTD uses a control spanning tree system for establishing and maintaining a routing tree among the network nodes and if a failure were to occur, a control message would be dispatched via spanning tree towards access nodes similarly to command nodes to trigger rerouting. Galand fails to disclose two separate neighborhoods associated with separate nodes not equal to each

other. Commerford teaches dynamically restoring routes in communication network and discloses in column 20 that if the dynamic router generation (DRG) has the ability to perform restoration for multiple outages and to perform restoration cooperation with other restoration systems. It is understood that other restoration systems may include other neighborhoods with different nodes. Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify Galand's invention to be able to use other restoration systems as taught by Commerford in order to be able to interoperate the ability to reroute and restore traffic between different neighborhood with varying nodes if failure were to occur.

Allowable Subject Matter

5. Claims 8, 9, 11-14, 22, 23, and 28 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any response to this action should be mailed to:

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Or faxed to:

(703)305-3988, (for formal communications intended for entry)

Or:

(703)305-3988 (for informal or draft communications, please label "Proposed" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag G Shah whose telephone number is 703-305-5639. The examiner can normally be reached on M-F 7:30 to 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 301-305-4366. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

cgs
August 5, 2002